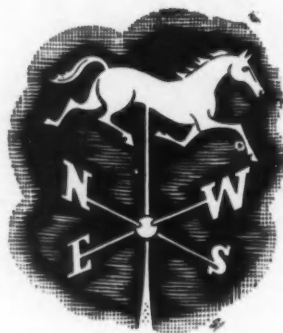


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The Grasshopper Menace In Florida for 1947

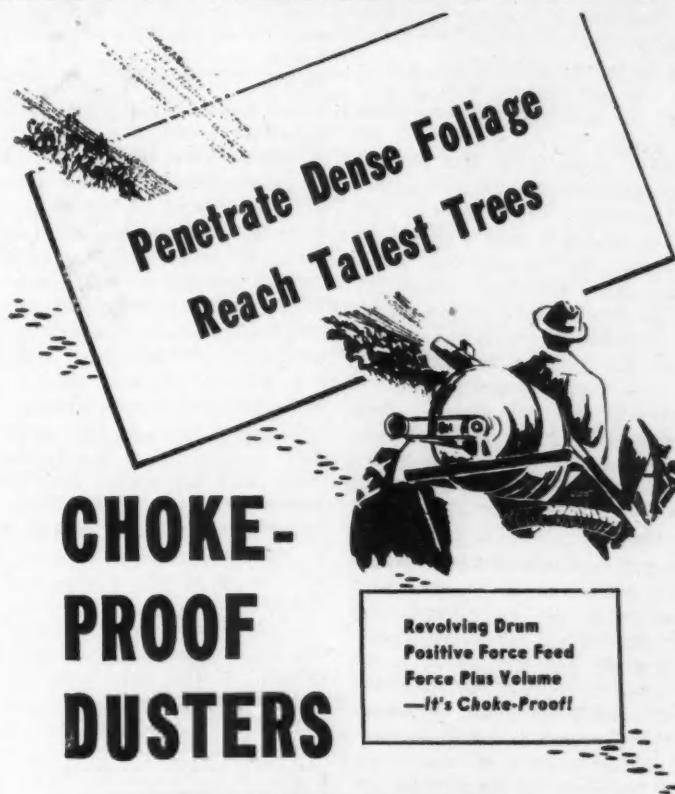
JAMES T. GRIFFITHS, JR., AND
W. L. THOMPSON*

During June and July grasshoppers have appeared in considerable numbers over several areas in the state. The heaviest populations have centered around Plant City in Hillsborough county. In June, a 10 year old grove was observed to be about 75 per cent defoliated. Damage in other groves has varied from this extreme down to the ragging of a few leaves on trees at the margin of the grove. There has been some damage to other crops. Several corn fields were defoliated, but fortunately the crop had been set and there was little loss in total yield. The situation has now developed to such a point that it seems advisable to inform the growers of the extent and potential seriousness of the infestation.

The primary species involved is the common bird grasshopper (*Schistocerca americana*), which in previous years has only been present in numbers of economic importance during the months of September, October, and November. Very little information is available concerning the life cycle of this pest. In general, the following may be stated with some certainty. Eggs are deposited in masses to a depth of one or more inches in the soil in grassy areas. These may be road margins, fence rows, pastures, cultivated fields which have grown up to cover crop, or grassy clumps in groves. A single female will probably produce several such masses and each one may contain from 25 to 50 or more eggs. The eggs hatch after a variable period of time, but probably in about 2-3 weeks in the summer months. The young grasshoppers or nymphs are tiny, but are easily recognized as grasshoppers. As these young forms grow, they pass through several stages or instars, molting or shedding their outside skins between each instar. When they are about half grown, small wing pads appear. These enlarge as the nymph grows and after the final molt, the grasshopper has fully developed wings and is

capable of flight. There is probably an interval of 6-8 weeks from the hatching of the egg until the hopper reaches adulthood. It becomes sexually mature within a few weeks after this last molt and is then capable of laying eggs.

In 1947, the grasshopper infestation has deviated markedly from that of former years. In contrast to previous years, by late July reports of damage have already been received from Hillsborough, Polk, Hardee, Manatee, Seminole, Alachua and



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* Entomologists, Florida Citrus Experiment Station, Lake Alfred, Florida.

Indian River counties. It is not known with certainty whether the grasshopper overwinters in the egg or in the adult stage, but during the winter of 1946-47 this species was observed in the field during January, and it was there as late as April. This would indicate that adults passed through the freezes of February and March. Young grasshoppers were first observed in late April in the Plant City area. During the last week in May, the authors observed a fairly heavy infestation south of Plant City which was composed only of young wingless individuals. These probably varied in age from newly hatched forms to some which were almost ready to get wings and become adults. In mid-June winged adults were present in some numbers. By late July, probably 60 per cent of the grasshoppers had become adults. The remainder were present in the fields as wingless forms which were more than half grown and which should attain adulthood within 10 days to two weeks. At the same time, examination of female grasshoppers in the field indicated that very few were sexually mature. However, it is to be expected that eggs would soon be deposited in considerable numbers in grasslands, fence rows, roadside margins and anywhere that grass of some type is available.

If the present generation of grasshoppers represents the first of two generations, it is to be expected that during October and November a serious situation will develop in many local areas throughout the state. Effective control measures do exist and the grower who has grasshoppers in or adjacent to his grove should consider the possibilities of control.

In 1946, benzene hexachloride was used extensively in the fall for the control of grasshoppers and pumpkin bugs. It was used as a dust and as a wettable material. Its use as a dust is recommended as a 1 per cent gamma isomer dust to be dusted both on the trees and on the cover crop. It should be applied at the rate of about 1 pound per tree. This is a rough estimate and should be modified to fit the individual grove. It is essential that both sides of the trees be dusted if satisfactory control is to be obtained. If the material is to be used as a wettable material, it should be applied at the rate of three pounds of a 50 per cent ben-

zene hexachloride wettable powder per 100 gallons of spray. This spray should be applied thoroughly to the trees and to the cover crop. Where a speed sprayer is used, it will be better to drive slowly (2½ miles per hour or less) and stop up a number of nozzles than to drive faster with all nozzles open. Unsatisfactory control has resulted where machines were driven too rapidly. Benzene hexachloride has little residual toxicity and therefore initial coverage is of extreme importance.

Wettable benzene hexachloride can be applied with wettable sulfur, but cannot be used in an alkaline spray. This means that it should not be dusted with lime-sulfur. The dust may be mixed with any inert diluent or with dusting sulfur. Benzene hexachloride should not be used in an oil spray and the dust should not be applied closer than two weeks to any oil spray. This is necessary in order to avoid the possibility of producing an off-flavor in the fruit. In 1946 an undesirable flavor was produced where benzene hexachloride was applied in oil. Close checks on tangerines, grapefruit, and pineapple and Hamlin oranges which were dusted or sprayed with wettable material after Sept. 1, 1946 failed to show any effects of the treatment. Until more information is available it is suggested that where any insecticide is applied to grazing land, all animals should be kept off that land for a period of one week to 10 days.

In planning a control program several factors should be carefully considered. If the fence margins and roadsides about the grove are infested, they should be thoroughly

treated along with the grove. If grasslands or old vegetable fields are adjacent to the grove, it is essential that the grasshoppers be controlled there in order to prevent reinfestation of the grove. If they are not treated, it will be extremely difficult to obtain control within the grove itself, since new grasshoppers will move in after the dust has lost its effectiveness.

Another factor of considerable importance is the status of the cover crop within the grove. In experimental work as well as in the applications of commercial operators, it has been observed that more satisfactory results are obtained following chopping or mowing. This is probably due to the fact that it is very difficult to get adequate coverage in a dense cover crop. Thus, if the cover crop is heavy and much more than knee high, it is probably advisable to chop or mow just prior to the application of insecticide. Chopping without insecticide application may be hazardous since the grasshoppers will be forced onto the trees for food.

At the present time sufficient evidence is not available to make recommendations regarding the possibilities of discing or plowing as a means of partial control. Work will proceed along these lines and definite information be available at a later date.

Two new insecticides appear as possibilities for use against the grasshopper menace. They are Chlordane and chlorinated camphene. Both are recent developments in organic insecticides. Both have been used extensively in the western U. S. for

(Continued on page 18)



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Publication office at Bartow, Florida. Entered as second class matter February 16, 1926, at the post office at Tampa, Florida, under the act of March 3, 1879. Entered as second class matter June 19, 1933, at the post office at Bartow, Florida, under act of March 3, 1879.

Factors Related to the Timing of Oil Sprays for Scale Control

During the past year, there has been a tendency among some growers of citrus to either limit or omit entirely certain phases of the spray program in order to reduce production costs. Compounds of zinc and copper are the two elements which growers tend to omit in the spray program because the residue from those sprays creates conditions favorable for scale increases. It is now common knowledge that the inert residue on the leaves does induce scale increases, but it is doubtful whether the residues from the sprays are much more of a factor in scale increases than dust which settles on the leaves following a mechanical application of fertilizer or the dust which settles during a cultivation in dry weather. The average grower would not think of omitting either of these operations although they do mean an increase in scales. The omission of zinc and copper in the spray is likely to be followed by a reduction in crop and a poor grade of fruit. (1) Tree vigor is probably as important a factor in creating conditions favorable for scale increases as residues. Therefore,

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Citrus Experiment Station

if the trees are kept in a vigorous growing condition, which is necessary for maximum production, purple scales will probably be present in sufficient numbers to warrant an application of an oil emulsion. The presence of a constant infestation of purple scales, even though it may not be severe, may not only reduce the initial crop, but may be a factor in causing a heavy drop of fruit during a period of drought, high winds, or low temperatures.

The relationship of low scale infestations to maximum production has been demonstrated in an experiment which has been conducted for a twelve year period. Of the 32 plots in the experiment, four have received an annual oil emulsion spray and two others have received no oil during that period except in 1942 when they were sprayed by mistake. With the exception of the oil spray, all plots were treated identically. During the twelve-year period, the oil-sprayed trees have never had more than a light infestation of purple scales compared to light-to-heavy infestations on the unsprayed ones. Where the scale infestations have

been kept at a minimum, there was an average of 99 pounds more fruit per tree per year than on the unsprayed plots. The average production of the sprayed plots exceeded that of the unsprayed ones in eleven of the twelve years, and during the 1946-47 seasons, there was an average of 266 pounds per tree more on the oil-sprayed plots than on the unsprayed trees. (See Fig. 1) The difference in the amount of fruit between the two series of plots was caused partly by excessive fruit drop on the unsprayed ones as well as an apparent weakening effect on the tree from a constant scale infestation. Since 1937, when a complete nutritional program was initiated, there has been a steady increase in production in all plots including the non-oil sprayed trees, however, where the scale infestations have been kept to a minimum the production has not only been higher but more uniform. In 1945, the production of the unsprayed plots was slightly higher than that of the sprayed plots, however, during the following year the production dropped from 670 pounds to 400 pounds, whereas the production in the oil-sprayed plots increased from 615 pounds to 655 pounds. Also, since 1940, there has been an increase each year in those plots compared

1 Camp, A. F. Resume of Feeding and Spraying Citrus Trees from a Nutritional Viewpoint. Proc. Fla. State Hort. Soc. 60-79, 1943.

to a drop in production during two years in the unsprayed plots. (Fig 1)

There are indications that purple scales will be more abundant in 1947 than usual. One reason for this supposition was the abundance of scales on the old foliage, the wood, and mature fruit during January and February. The continued warm weather during the winter, up to February 6, was probably a factor

been made by August 1. Where an oil spray is applied in June, it is of utmost importance to obtain a very thorough coverage of the leaves and wood so that the scale population is reduced to a very low level. If any quantity of living scales remains, there is still a comparatively long period of warm weather during which time they may reinfest the trees to such a degree that they may cause a fruit drop

sprayed plots and the plots which had not been sprayed since the previous December. The fruit drop was also significantly higher in plots sprayed either on June 15 or July 1, than in plots sprayed during the period from July 15 to October 15. (See Fig. 2) The least amount of fruit drop occurred in the plots which had received two annual oil sprays for a period of three years. This definitely indicated that the scales were the main factor in causing the drop rather than any effect the oil might have had on the tree.

In order to determine whether scales on the stem end of the fruit were a factor in causing the abnormal fruit drop, records from two plots receiving different spray programs were compared. The plots which received an April post-bloom copper-oil and a straight oil emulsion on June 15 had the least fruit drop in the block. On the other hand, the blocks sprayed June 15 had the second heaviest average fruit drop of the 28 treated plots. The trees in both plots appeared to have only light infestations of scales. When actual counts of scales on leaf samples were made, no significant difference could be found. However, when the fruit was examined during the grading operation, it was found that 43 percent of the fruit from plots sprayed June 15 had purple scales on the stem end compared to only 25 percent infested fruit where the two sprays had been applied. The unsprayed plots, which had a very heavy fruit drop, had 88 percent of the fruit infested on the stem end. Although there were some exceptions, the percentages of fruit infested on the stem end in the various plots was correlated with the amount of fruit drop as shown in Fig. 2.

It has been stated above that plots receiving two oil sprays had the lightest fruit drop. However, oil sprays should not be used indiscriminately. On an average, trees receiving two oil sprays annually, over a three year period, were injured more by the low temperatures during February than plots that were sprayed once each year. The most severe injury occurred in plots sprayed on June 15 and again October 15, and the least amount of injury occurred in plots receiving the first application as a copper-oil in April, followed with the second oil June 15. (Fig. 3) There was also an excessive amount

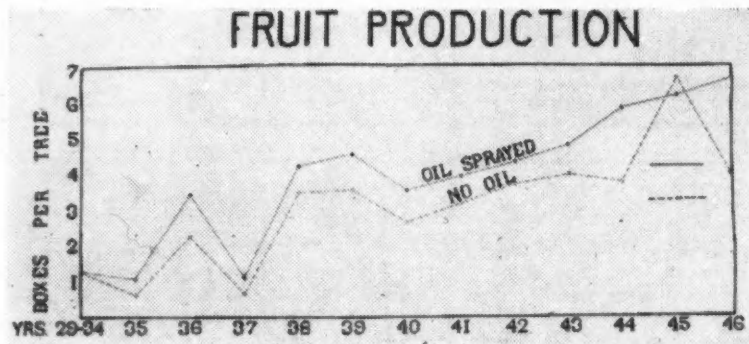


Figure 1

in the development of medium-to-heavy infestations during the winter. The second reason for the probable heavy purple scale infestations this year is an indirect result of the freezing temperatures which occurred in some sections of the citrus belt during February. Heavy purple scale infestations followed the freezes of 1934 and 1940, and conditions in cold injured groves that were partially defoliated are quite similar this year to those following other severe freezes. Following such a defoliation, there is usually an abnormal flush of growth on the large inside limbs. This inside growth is succulent and shaded, thus affording an excellent condition for purple scale development.

At the present time, an oil emulsion spray is the only recommended method of controlling scales in Florida, thus, it is important to obtain a high degree of control without injuring the trees or interfering with coloring of the fruit or the formation of maximum solids. The recommended dates for oil applications as stated in the Better Fruit Program are May 15 through July for grapefruit, and June 1 to July 15 for oranges.

Where a large acreage must be sprayed within a period of six to eight weeks, the oil spraying should be started between the first and fifteenth of June. In actual practice, the oil spraying should be started so that all applications will have

if the trees are weakened by some other adverse conditions. The excessive drop of Pineapple oranges following the hurricane of 1944 and the high winds of near hurricane force in October, 1946, were instances where scales were a factor in causing a drop of fruit following adverse conditions to the trees.

During November and December 1946 and January 1947, there was a heavy drop of Pineapple oranges throughout the State. There were at least three probable reasons for the abnormal drop; namely, (1) the effect of the strong winds of October, (2) the abnormally warm weather, and (3) the presence of purple scales on twigs and, especially, on the stem end of the fruit. The fact that scales were a positive factor in causing the drop is indi-

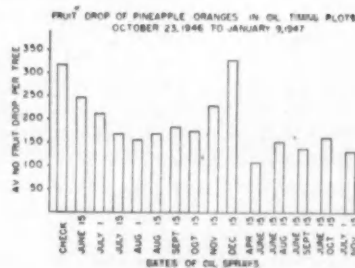


Figure 2

cated from results obtained by recording the number of Pineapple oranges which dropped from trees in an oil timing experiment. The heaviest drop occurred on the un-

of dead wood where the trees received a second spray on November 15. The timing of the single sprays was also important in regard to cold injury. The minimum amount of injury developed on the unsprayed plots and on trees sprayed between June 15 and August 1, inclusive. Trees sprayed in the period between August 15 and October 15 were injured more severely than trees sprayed during the earlier period, but the most severe injury occurred on the plots

in the Better Fruit Program are still recommended. Again, stress is laid on the importance of obtaining thorough coverage where an oil spray is to be applied so that during the average year only one application will be necessary. However, where two sprays are contemplated, the copper-oil followed by the June or July oil has given the most satisfactory results with the least injury to the trees. The dual sprays applied at those times have also had less effect upon the formation of maximum solids than any of the other timings of double sprays.*

Copper-oils are recommended in the spring in order to check scale infestations and at the same time to control melanose. As a rule, the copper-oil is not as efficient as a straight oil emulsion and unless the trees have a very light infestation of scale, such an application should not be depended upon to control the scale for the whole year. If a copper-oil is to be used, it should be applied before the fruit reaches three-fourths of an inch in diameter in order to avoid marking the young fruit. At best, the copper-oil combination is not too safe, from the standpoint of marking the fruit, but the least amount of injury has developed on fruit where the application has been made when the fruit was one-fourth to three-fourths inches in diameter. Where the oil spray was delayed until the fruit reached one to two inches in size, 60 percent of the fruit was marked to a more or less degree. Apparently, the most common type of injury is correlated with the size of the fruit rather than high temperatures. Thus, in 1945 when there was considerable June and early July bloom fruit, the opportune time to spray for the control of melanose for the late-bloom fruit was mid-July. At that time, many groves had not been sprayed with an oil emulsion because of the extended drought that lasted until early June, therefore, a copper-oil seemed to be in order. However, in one experiment where Valencia, Pineapple, and Hamlin oranges were sprayed on July 17 with a copper-oil combination, practically all of the early-bloom fruits were marked, but no injury was observed on the late-bloom fruits which indicated that

the factor was fruit size rather than high temperatures.

Discussion

The data discussed in this article are results obtained from recent experiments but, as a whole, they substantiate work which has been reported by the writer in former publications. Oil sprays are not a tonic to citrus trees but if applied during certain periods, they are less likely to injure the trees than a constant scale infestation. Even though the foliage does not appear to be heavily infested, there may be enough scales on the wood to weaken the trees as well as to cause a premature fruit drop. Early June oil sprays have not resulted in the most satisfactory seasonal scale control but during the average year, the June and July applications have resulted in satisfactory control of purple scale. Oil sprays applied during that period had the least effect on the trees, from the standpoint of injury, from drought or cold weather, and have had the least effect in preventing the maximum solids in the fruit, and have also interfered less with degreening of the fruit early in the fall. Where two sprays have been applied, the most satisfactory results have been obtained where a copper-oil spray was applied when the fruit was between one-fourth and three-fourths of an inch in diameter, with the second oil following in June or early July. The timing of those two sprays has been exceptionally satisfactory for the control of red scales. An early June spray followed by another application in six weeks has also resulted in excellent red scale control but according to Mr. Sites, the solids were materially affected where the second spray was delayed until August 1st or later.

POUNDS OF DEAD WOOD PRUNED FROM ORANGE TREES IN OIL TIMING PLOTS AFTER FREEZE OF FEB. 6, 1947

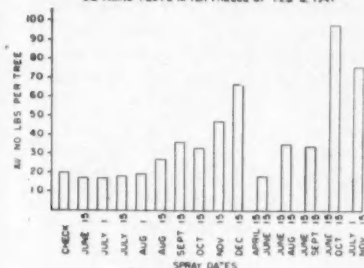


Figure 3

sprayed November 15 and December 20, respectively. It should be noted that the cold weather occurred at least six weeks after the last application on December 20. This indicates that it was not the presence of the oil on the leaves but the effect on the trees in general.

There was no significant difference in the amount of cold injury in three other blocks where oil timing experiments had been conducted for a one-year period. Although no temperature records were obtained from those blocks, the temperature apparently did not go so low as in the block where the three-year experiment was conducted. The results of these observations indicate that during the average year two oil sprays would not be particularly harmful, especially if the second application was made before October and preferably by August 1. If a practice is to be made of applying two oil sprays annually the safest periods to apply the oils have been a copper-oil application made in April, followed by the second oil in June or July. However, if trees are heavily infested in the fall of the year, an oil spray is recommended since the spray will probably be less injurious to the tree than a heavy infestation of purple scales.

Considering the various factors influencing the timing of oil sprays for the control of purple and Florida red scale, the dates as published

* J. W. Sites, Associate Horticulturist, Citrus Experiment Station. (Unpublished data).

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The Florida Citrus Industry

By BROWN R. RAWLINGS
In Monthly Review, Federal Reserve
Bank of Atlanta

(Continued from last issue)

That the citrus industry has apparently failed in reaching workable solutions to its economic problems is certainly not because of lack of effort. The recurring years of "over-production" and ruinously low prices stimulated a keen interest in them. Many solutions, mainly in the general field of marketing, have been proposed and tried.

Some of the larger growers pack, ship, and sell their own fresh fruit. Most growers, however, sell theirs in three principal ways. About 35 per cent is sold through growers cooperative marketing associations. Most of the remainder is sold on the tree, by the box or by the ton, to independent shippers. Only a small quantity is sold on a consignment basis. Under this arrangement the shipper acts as the grower's agent in packing, shipping and selling the fruit.

Florida's citrus processing, which began in the early 1920's, has grown so rapidly that about equal portions of the crop are now sold in fresh forms. The fruit moves into processing channels in several ways. For the cooperatives and large independents with their own processing facilities the movement is simply a matter of diverting part of the total production into processed form. For the small grower who is not a member of a cooperative there are three usual marketing channels for fruit that is to be possessed. The grower may sell directly to a processor, or to an itinerant buyer who in turn sells to a processor. Most sales to processors are on an on-tree basis.

To conform to economic and technical changes the mechanics of marketing have changed markedly over the years. Although certain underlying problems are still unsolved a great deal of progress has been made. Since early in the history of the Florida citrus industry an idea that changes in marketing could help to promote greater economic stability has persisted among growers and shippers.

Cooperative marketing associations were among the first concrete mani-

Each month the Federal Reserve Bank of Atlanta issues a review in which some major industry of the region served by the bank is featured. In the April issue of the Review, the Florida Citrus Industry was the subject covered. The material in this review is so timely and the conclusions drawn are so clear-cut that we believe their reproduction here will prove of great interest and value to the citrus growers of Florida.—Editor.

festations of this general idea. The Florida legislature passed its first cooperative marketing act in 1909. Under the provisions of that act and succeeding acts numerous citrus-fruit-marketing cooperatives have been organized.

The Florida Citrus Exchange at Tampa, one of the first of the citrus cooperatives, has since its inception in 1909 held an important place in the state's industry. Its members are subexchanges, which in turn comprise local cooperative associations and independent shippers that ship at least 400,000 boxes of fruit a year through the exchange. Primarily the exchange is a sales organization. It handles interstate sales of both fresh and processed fruit for its members, who produce from 25 to 30 per cent of the state's total citrus crop. In addition to handling sales, the exchange also provides its members with other services, such as the extension of production credit.

Local citrus-marketing cooperative associations form the most important single group of cooperative marketing agencies serving Florida growers. Their chief service is fruit packing. In recent years, however, their grove caretaking services, selling and processing have increased in importance. The average volume of fruit handled by each association has also increased rapidly. With this increase there has been a tendency for local cooperatives to withdraw from the Florida Citrus Exchange

and perform their own selling functions.

The cooperatives handling the greater quantities of fruit have usually given packing services at a low cost, obtained a higher sales price, and returned a larger net profit to the grower than have those handling relatively small volumes of fruit. Apparently this relationship between volume of business and efficiency applies also to the independent marketing agencies. Among both the cooperative and the independent marketing agencies that handle Florida citrus fruit the turnover, or rate of failure, has been high. Both independents and cooperatives seemingly weather the economic storms better when their volume of business is large.

In spite of the marketing efficiencies achieved by both the cooperatives and the independents, the total outlet for the state's citrus fruit needed expanding. To meet this need an act of the legislature created the Florida Citrus Commission in 1935. The commission is composed of 11 members who are appointed by the governor to represent the citrus industry. A tax on each box of citrus fruit moving out of the state finances its work. Its primary functions include intensive advertising, certain regulatory activities, and the promotion of research that will lead to an expansion of outlets. The vigorous approach made by the commission has gone far toward the achievement of its main purposes. That many problems remain to be solved in no way reflects on the commission but serves, rather, to emphasize the complexity of those problems facing the industry.

The efforts to increase total demand and marketing efficiencies have been augmented by measures that were designed to standardize the product and to control quality. Examples of the legislative measures are the grade and size regulations set by the United States Department of Agriculture and the standards of maturity and other conditions imposed by the citrus commission. Cooperative marketing organizations also have fostered standardization and

quality control among their members for many years. Most important of these measures now in effect, however, are those imposed by the Growers Administrative Committee, which operates under the provisions of the marketing agreement authorized by the Federal Marketing Act.

The marketing agreement is a voluntary agreement on the part of the growers. It is subject to the approval of the Secretary of Agriculture upon petition by the growers. The marketing agreement now in effect was adopted in 1939. It relates only to the regulation of size and grade of the citrus fruit to be shipped in designated periods. Eight citrus growers appointed by the Secretary comprise the Growers Administrative Committee. The Shippers Advisory Committee, composed of eight citrus-fruit shippers likewise appointed by the Secretary, advises the administrative committee on problems relating to shipment regulations. The primary purpose of these regulations is to control the grades and sizes of fresh fruit in a manner that will promote maximum consumer acceptance, maintain the quality and reputation of Florida fresh fruit in terminal markets, and generally maximize the returns to growers so far as regulations of grade and size permit. Changes in the regulations for a given period can be recommended to the Secretary only after a referendum in which at least two thirds of the growers approve the proposed change. Regulations proposed by the administrative committee must be approved by the Secretary before they can be made effective.

During the first part of the current season the Florida citrus industry was in economic distress despite what are generally regarded as favorable supply-and-demand conditions, such as efficient marketing practices, large expenditures for advertising, regulations on the grade and size of fruit shipped in given periods, and a high level of non-agricultural income. Again the problem was to sell the record citrus crop for prices that would enable the growers and other groups in the industry to make a profit.

To some extent the difficulties in the first half of the current season may have arisen from an unhappy combination of circumstances. The Florida industry had had no experience in handling a 100-million-box citrus crop, which was in prospect at the beginning of the season. Dur-

ing the war years a large portion of the increased production had been processed, relieving somewhat the pressure on the fresh-fruit market. The large Government purchases and an otherwise abnormal demand resulting from a shortage of competing canned fruits and juices had supported prices of processed fruit. Faced as it was with a heavy carry-over of citrus juice and the prospect of competing in a primarily civilian market of products that were increasing in number and volume, the processing phase of the industry seemed to have little ability to provide a profitable outlet. On the other hand since relatively large price decreases are necessary to increase fresh fruit consumption appreciably, the amount of fruit that could be sold profitably in fresh form was limited. Maturity standards for early oranges are such that some Florida varieties, particularly Hamlins, can pass the test and yet fail to interest consumers. Growers, because of the temptingly high prices early in the season and a large crop shipped relatively great quantities of early oranges before they had attained the maximum quality.

The natural dissatisfaction on the part of both consumer and fruit dealers with the fruit further intensified the problem of selling the even larger volume of midseason oranges.

Although the destruction of an estimated 11.5 million boxes of the Florida citrus crop by the heavy freeze in February resulted in price rises to profitable levels, persons in the citrus industry realize that this 10 per cent loss of their current crop has failed to alter their basic problems. Since the Bureau of Agricultural Economics has estimated that total Florida citrus production will be about 124 million boxes by 1969, in the near future the industry must again wrestle with the problem of selling Florida citrus crops at profitable prices.

This prospect has renewed interest in various marketing controls. Most seriously considered are those controls designed to limit the supply marketed. Methods limiting the supplies may entail either a regulation of shipments to market for short periods or a reduction of the yearly supply. Each of them has been advocated by persons interested

(Continued on page 18)

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Subscription, \$1.00 per year in advance
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FOREIGN OUTLET FOR CITRUS REVIEWED

The prospect for expansion of foreign markets for Florida citrus fruits is reviewed at some length by General Manager Robert C. Evans of the Florida Citrus Commission in presenting the report of Julian Langner who has just completed a six-months survey of such possibilities.

In a 380 page report of his findings, Mr. Langner states that "Florida is in a more favorable position to meet future demands of citrus-deficient countries than any other producing area in the world, both because of an available exportable surplus and because it is closer to European markets than any other citrus producing area in the United States."

Pointing to a serious shortage of citrus fruits in most foreign producing areas Langner says: "Spain, biggest supplier of oranges to Europe in pre-war years, has suffered a drastic drop in production, and a conservative estimate of Spain's deficit as an exporter is 5,000,000 boxes annually. This fact, plus smaller declines in other producing countries, would indicate Florida's potential export market for oranges into European countries should be no less than 5,000,000 boxes annually, making no allowance for increased consumption referred to by the trade."

"The European trade is emphatic," he says, "in its opinion that the quantity of fresh and canned citrus fruits which will be consumed under normal international trade conditions will be greatly in excess of pre-war consumption. The peoples of Europe are becoming more vitamin conscious. The value of citrus is being increasingly recognized by the medical profession in foreign countries."

That is the bright side of the picture, but, Langner says, the problem is how to attain this potential market for the Florida citrus industry in the face of dollar shortages, foreign government purchases and foreign government control of imports.

"It is suggested," Langner said, "that future plans for export should be based on recognition of the fact that for a long time exports of fresh and canned citrus products will be sold either directly to governments or to private trade under rigidly controlled government authority.

"It is believed that the Florida citrus industry should make appropriate adjustments in its marketing mechanisms and policies to meet new conditions, and that failure to do so might handicap it in its future operations in world markets."

Mr. Langner points out that the potentiality clearly exists, and he suggests some of the essentials needed to convert those potentialities into realities.

Pointing out that the citrus industries of Palestine, South Africa, Australia, Spain and California are represented in European markets, Langner recommended in his report that the Florida citrus industry seriously consider setting up trade representation abroad. He said that 70 per cent of the British trade contacted in a survey stated such a move on Florida's part would be "highly desirable."

He further recommended that the Florida industry "consider formation of an export pool to provide the dependable continuity and quantity of supplies required to serve the European markets adequately, and to cushion the impact of price differentials, if any."

On the whole, the report indicates that there is a fruitful field in the European market for future development.

THE CROP OUTLOOK

While few citrus men are disposed to hazard a guess as to the exact size of the fast developing 1947 citrus crop, it is quite generally agreed that the crop will be materially less than that of a year ago.

Field men of commercial organizations report that the grapefruit crop is in generally favorable condition, though they estimate a smaller total yield than last season. Oranges are reported spotted as to size of crop, good in some sections, fair in others and poor in still others. A marked reduction from last season's yield is anticipated. By far the greatest reduction in yield is looked for in tangerines.

But, while agreeing that a smaller crop than last season is indicated, they are also agreed that so far as quality is concerned the prospects are the best in many years. Growers, caught with an excessively heavy production last year, much of it of inferior quality, resulting in disastrous prices, have this year exerted themselves to the utmost to see that their groves were given exceptional care. Every step that makes for the production of quality fruit appears to have been taken by practically all growers in every section of the citrus "belt."

With a shorter crop and better quality, growers are looking forward with confidence to a season of profitable prices.

With the employment of a full-time sales expert to push cannery products and an active campaign to boost the sale of Florida limes, the Florida Citrus Commission has taken two forward steps which should be of great benefit to the industry.

Fourteenth Annual Session Florida Citrus Institute

By J. FRANCIS COOPER

Extension Editor, Florida College of
Agriculture, University of
Florida

Recent research developments at the USDA Laboratory in Orlando and the Citrus Experiment Station in Lake Alfred, as well as the economic situation and outlook, will be discussed during the 14th annual Florida Citrus Institute, Camp McQuarrie, Aug. 25-28.

Dr. H. Harold Hume, provost for agriculture at the University of Florida, H. G. Clayton, director of the State Agricultural Extension Service, and Harry Brown, district agent with the Farm Credit Administration of Columbia, are slated to be among the principal speakers.

R. E. Norris, County Agent, Tavares, who is accepting reservations for the week, says the 4-H club camp in the Ocala National Forest near Astor Park can accommodate 100 persons over night. Those who bring their own trailers can find places to park them. Others are expected for each day's program. Meals will be served at the camp.

Registration is slated to begin at 2 o'clock Monday afternoon, Aug. 25, and the first program will be at 8 o'clock that evening, when Director Clayton will speak.

Tuesday's speakers from the USDA Subtropical Fruit Field Station in Orlando will discuss pollination, foliage diseases, iron chlorosis, creasing, better handling and rootstocks. Speakers will include Drs. P. C. Reece, J. F. L. Childs, Walter Reuther, Erston V. Miller, J. R. Winston, F. E. Gardner and Dave White.

Norris will present some observations of pest control by tree snails, and Dr. O. C. Bryan, technical director of the Soil Science Foundation, Lakeland, will speak on the influence of soil treatment on the composition of citrus leaves.

Dean Hume's address will feature the Tuesday evening session.

Wednesday will be given over largely to discussion of economic phases of the citrus industry. Dr. J. Wayne Reitz of United Growers and Shippers will speak on the future of citrus marketing. Dr. H.

G. Hamilton of the College of Agriculture will point out trends in the processing industry, while Dr. C. V. Noble, head economist at the Experiment Station, will point to trends in recent grove plantings. Growth and trends in the express

fruit business are slated for discussion by Al Voges, secretary, Florida Express Fruit Shippers Association. Harry Brown will talk on meeting the credit needs of growers and Dr. Ralph L. Miller, Plymouth Citrus

(Continued on page 18)

"A Bird in the Hand"

The outlook
for adequate supplies
of fertilizer
is not much better
than it has been
for several years past.

In order to spread
the delivery of fertilizer
in an orderly manner
throughout the year,
and to insure having
needed fertilizer on time,
the wise grower will
arrange to take some in
during the summer.



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Unseen Values In Citrus Fruits

J. L. HEID, B. S.,
Associate Editor, "Food Technology"

"Reprinted by permission of the editor, Dr. J. Wayne McFarland, from LIFE AND HEALTH, published at Tacoma Park, Washington, D. C. The interest of this magazine warrants the appreciation of The Citrus Industry."

During warm weather, loss of salt and other minerals in perspiration is increased, being greatest in individuals engaged in manual labor or other active physical effort.

When we perspire, thirst prompts us to drink more water. We use salt tablets or other means of increasing salt consumption to avoid deficiency symptoms described as heat prostration or sunstroke. Perspiration contains other minerals in addition to salt. Because of increased fluid intake and exertion, depletion of all minerals and of vitamins is greatest in summer. Unless these losses are compensated for in the diet, health may be impaired. The effect of inadequate diet on dental health may be visibly accentuated in men engaged in strenuous labor, calling attention to the widespread deficiency of balanced C and D vitamins and of calcium and phosphorus, all of which are indispensable for the development and protection of healthy teeth.

Fortunately, nature provides a means of compensating for the effect of summer temperatures. Cold water quenches thirst pleasantly. Citrus juices quench thirst pleasantly and conveniently also, and have about the same sugar content as soft drinks. In addition they are the richest available food sources of essential vitamins C, P, and Inositol, and are sources of naturally balanced B factors and minerals.

Citrus Juices

In reply to the question, "Is synthetic ascorbic acid equivalent to the ascorbic acid of citrus fruits?" an unqualified answer may be misleading. Chemically and biologically the two are identical. But the combination of vitamins and minerals of citrus juices enables this food to function as larger quantities of ascorbic acid alone cannot. Our current knowledge of nutrition is not sufficiently complete to

warrant fixed conclusions, but here is one statement that can be made. Synthetic vitamins can no more replace natural foods than a star football carrier can replace his entire team, or a crutch can replace a normal foot and leg.

The spectacular value of citrus fruit as a source of vitamin C has been demonstrated in human and animal tests on the body's use of calcium in its bony structures and its dental health. Other less well-known nutritional factors in citrus fruit are of equal importance. Vitamin P has no less value as a factor in keeping strong healthy blood vessels, although it has defied efforts to isolate and purify it without destroying its value. Evidence is accumulating, not only of its favorable influence upon the complete use of vitamin C, but also of its value in preventing certain types of blindness. It has also been used in treating certain forms of high blood pressure. Citrus fruits are rich sources of vitamin P. Raw or canned juice may supply normal needs, and sufficient concentrates for clinical requirements can be recovered from peel residues from commercial canning operations.

Another vitamin abundant in citrus fruits is Inositol (a member of the vitamin-B complex). It got a bad reputation because it failed to cure or prevent baldness — a virtue surmised or hoped for by early investigators. It is now recognized as a vitamin-B factor which may minimize damage to the liver as a result of unbalanced diets or self-medication with amounts of another B factor, vitamin B, (thiamin), which are excessive in relation to the protein supplied in the diet.

Not only are citrus fruits rich sources of vitamins C, P, and Inositol, but they also contribute naturally balanced B-complex factors and minerals to the diet. The facts uncovered to date are all in favor of the benefits to be derived by the public from tripling the consumption of citrus fruits and juices.

It is necessary to revise our estimates of the quantity of citrus fruits or juices which are desirable, C. G.

King, director of the Nutrition Foundation, reported last November that he found five to ten times the minimum supply of vitamin C as being valuable to promote optimum healing of wounds and fractures. As a result of tests at Columbia University, he concluded that with the exception of citrus fruits, 80 to 90 per cent of the vitamin C content in our food is regularly lost between the market and the dining table.

Scouler and Bryan, in the Journal of Home Economics for December, 1944, report analyzing school lunches planned by dietitians and served in a demonstration school for thirty days. The only day the lunch wasn't grossly deficient in vitamin C was the day that an orange was served for desert. It furnished 97 per cent of the ascorbic acid available in the lunch.

Surveys by the National Research Council, the U. S. Department of Agriculture, and other investigators agree that in this, the best-fed nation in the world, approximately half the people suffer from malnutrition—not the gross deficiencies which are apparent to casual observation, but the hidden hungers which result in subnormal development of bones, teeth, and body tissues and in impaired resistance to infectious diseases.

Nutritional deficiencies that are easily supplied by food elements abundant in citrus fruits, are prevalent in all income groups. Citrus fruits offer pleasant, convenient, and refreshing health protection. To go without them is to handicap oneself needlessly. Why not start the day with citrus juices?

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DeBusk and Nettles Close Long Careers With Farm Service

W. T. Nettles, district agent, and E. F. DeBusk, citriculturist with the University of Florida Agricultural Extension Service, retired June 30 after nearly 30 years on the staff.

A. P. Spencer, director of extension, retired on the same day, his retirement having been announced several weeks ago. Re-



W. T. Nettles

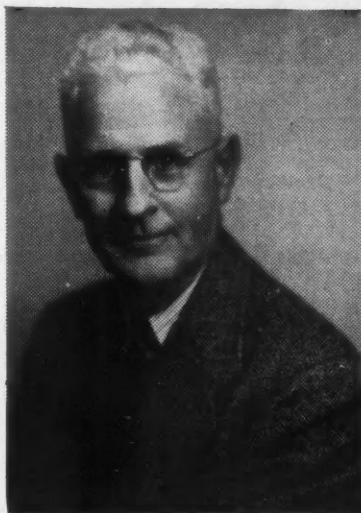
quests for retirement by Mr. DeBusk and Mr. Nettles were approved by the State Board of Control shortly before they went into effect.

Mr. Spencer has been succeeded by H. G. Clayton, long-time district agent and for the past 14 years head of agricultural conservation program activities in Florida. Successors for Mr. DeBusk and Mr. Nettles have not been announced.

Mr. Nettles, 66, has been with the Extension Service intermittently since January 1, 1917, when he became farm agent in Clay County, with headquarters at Green Cove Springs. From August 1, 1919, to October 1, 1922, he was engaged in other work but returned to Clay County for a year before again returning to private employment. On October 16, 1925, he became agent in Pasco County, with headquarters at Dade City.

He was named district agent for

southern Florida and the East Coast on September 1, 1927, the position he has held continuously since that time.



E. F. DeBusk

While in Clay County Mr. Nettles inaugurated summer camps for 4-H club boys and the practice has spread throughout Florida and the

United States, the camps offering instruction, inspiration and recreation.

Mr. Nettles has served as vegetables specialist with the Extension Service and has played a leading role in the inauguration and establishment of fat stock shows that have contributed materially to livestock development in Florida during the past 12 to 15 years.

He is one of the most widely known and popular extension workers in the country.

Mr. DeBusk, 63, has been with the Extension Service continuously since October 1, 1917, when he became agent in Orange County with headquarters at Orlando. On April 1, 1920 he was made assistant state boys' club agent and on January 16, 1921, he went to Lake County and worked out of Tavares. He came back to Gainesville as state citrus specialist September 11, 1923, a position he has held since that time.

Since July 1943, however, he has devoted most of his time to supervising the emergency farm labor program for Florida.

Mr. DeBusk was a pioneer in the field of better citrus nutrition in

(Continued on Page 18)

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How Diseases Attack Shade and Other Trees

W. B. TISDALE

Shade trees, like all other plants, are affected with various kinds of diseases. Many of the trees used for shade and ornamental purposes grow slowly and have a high value as compared with forest trees of similar kinds. Because of this, diseases become important when they detract from the beauty of the trees or predispose them to wind damage and short life. Furthermore, trees that are weakened by root and trunk rots are dangerous in the vicinity of houses, parks and streets. It is more important, therefore, that we know how diseases attack shade trees and what may be done to prevent the troubles than it is to know the various kinds of diseases.

Most serious diseases of shade trees are caused by parasitic organisms, but in many instances these organisms attack the trees only after they have been weakened by unfavorable environmental conditions or by mechanical injuries. Unfavorable conditions are brought about by changes in water table, filling depressions, removing the surface soil around the trees, sudden changes in exposure to sunlight, or to direct injury to the roots incident to paving. Such changes may be directly responsible for sudden death of the trees, die-back of the branches, shedding of leaves, sun-scald of the trunks, or cold injury, or indirectly by affording openings for attacks by parasitic organisms.

Cutting the roots incident to paving usually results in direct temporary or permanent injury to trees because it prevents the trees from taking up the required amount of water. Covering a large portion of the root system of large trees with pavement may reduce the water and oxygen supply to such an extent that the trees will fail in a few years. Small trees planted in similar positions after the pavement has been laid usually adjust themselves to new conditions more successfully than larger ones. Filling depressions with earth around trees also excludes air from the roots and is not an uncommon cause of their death. Gasses from furnaces, leaky gas pipes, or chemical plants may

cause serious injury or death of trees in a short time.

In addition to troubles caused by these unfavorable environmental conditions, there are diseases of the leaves, roots and trunks of trees caused by parasitic organisms. A disease known as leaf blister is common on certain species of oaks, and the water oak and laurel oak are more susceptible to this disease than other species. In years when cool, rainy weather prevails while the leaves are young, the leaves become severely infected, develop the characteristic blisters, and shed prematurely. Ordinarily this disease does not cause permanent injury unless conditions that favor development of the disease occur several years in succession.

Tar spot sometimes causes an unsightly condition and premature shedding of maple leaves, but rarely causes permanent injury to the tree. Leaves of the sycamore or plane tree are sometimes attacked by a leaf-spot disease called anthracnose. There is no practicable remedy for controlling any of these diseases on large trees unless one has a power sprayer of the type used for spraying pecan trees.

Many kinds of shade trees are attacked by root diseases and decays of the trunks that not only shorten the life of the tree but endanger lives and property of people in their vicinity. These diseases are insidious in their activity and difficult to detect in early stages of their development. In the case of root disease, no trouble may be detected until the top begins to fall or the tree is blown down by a strong wind. The organisms responsible for root decay usually enter through a mechanical injury or through roots that are weakened by unfavorable environmental conditions. Mushroom root-rot is the most common and serious of root-rot diseases in Florida. The fruiting bodies or mushrooms of the fungus that causes this disease arise in the fall in clusters on diseased roots near the base of the tree. If the weather is

dry, the mushrooms dry up and remain recognizable for several months. If the presence of the fungus is detected sufficiently early, it is possible to check its advance by removing parts and treating the cut surfaces with a fungicidal paint. Otherwise, there is not much that can be done to check its progress. The most satisfactory way to control root-rot is to avoid injuries to the roots or to treat the cut surfaces to prevent infection.

Decay in trunks of trees is largely associated with wounds of various kinds. Fire, faulty pruning or unprotected pruning wounds are some of the most common causes of trouble. The fungi enter through such wounds and dead branches and advance into the heartwood where they cause rapid decay, leaving only a hollow shell of the sapwood. This rotting of the heartwood weakens the affected branches and trunks and predisposes them to being broken off by the wind.

All of the wood-rotting fungi respond to the same treatment, and the most practicable treatment is prevention. The principal means of prevention are to avoid making wounds whenever possible. When it is necessary to remove branches,

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Citrus Commission Promoting Sale of Florida Limes

The 1947 Florida lime crop is getting a strong Summer promotional push from the Florida Citrus Commission, Don Butts, advertising and sales promotion manager, said recently.

In addition to trade paper advertising in the fountain, bar and retail food fields, numerous displays are being arranged in retail outlets by the commission's dealer service men, with posters, price cards and other display material provided by the commission.

A special effort also is being made in the consumer publicity line, with recipes, articles and pictures being mailed to food page editors and with radio material being provided for food commentators, Butts added.

The advertising, promotional and publicity campaigns were planned in cooperation with the commission's lime advisory committee of which Luther Chandler, Goulds, is chairman. Other members are Clarence Parman, Homestead; Carl Piowaty, Princeton; Ivey Futch, Lake Placid and Frank Poitras, Florence Villa.

Members of the lime committee, in a conference at Miami with Butts and W. L. Story, Winter Garden, chairman of the citrus commission advertising committee, delegated Piowaty, Futch and Butts to investigate and develop interest in various lime concentrate products. It is believed that such a processing outlet would be helpful in bringing growers fair returns in years of heavy production Butts said.

The citrus commission's annual lime promotion campaign is carried on with funds derived from a 4-cent a box tax on that portion of the crop which moves into commercial channels. Limes are grown principally in the lower Dade County and the Polk-Highlands County areas.

AGREEMENT FACILITATES U. S. FRUIT AND FRUIT PRODUCT EXPORTS TO SWEDEN

An understanding reached between the governments of Sweden and the United States provides for relaxation of import controls imposed by the former country March 15, 1947, and paves the way for a substantial move-

FLORIDA CITRUS FRUIT DECISION RECOMMENDED

The United States Department of Agriculture has announced that it is recommending adoption of amendments to the Florida citrus fruit marketing and order program.

The recommended amendments, which provide that regulations may be issued containing different grade and size limitations for the Indian River section, were proposed by the Growers Administrative and Shippers Advisory Committee which administer the marketing program. The decision to recommend adoption of these amendments is based on the evidence received at the public hearing held on May 12 at Vero Beach and May 14 at Lakeland.

Copies of the proposed amendments are available at the office of the Growers Administrative and Shippers Advisory Committees in Lakeland, and at the office of Minard F. Miller, field representative, Fruit and Vegetable Branch, Production and Marketing Administration, USDA, Drane Building, Lakeland.

Persons wishing to file written exceptions to the decision recommended by the Department may do so with the Hearing Clerk, Department of Agriculture, Washington 25, D. C., not later than Aug. 11, 1947.

ment of U. S. fruits and fruit products to Sweden during the next 12 months.

Under the terms of the understanding, which became effective July 1, licenses are to be granted for the importation into Sweden of commodities listed in Schedule I of the Reciprocal Trade Agreement, and on the restricted list, to an amount, for the period from January 1, 1947 to June 30, 1948, equivalent to not less than 150 per cent of like imports during the calendar year 1946. The quantities of other restricted commodities licensed for import will be determined at Sweden's discretion.

Fruits and fruit products listed under Schedule I of the Trade Agreement of 1935 include fresh apples, pears, plums, and grapefruit; dried apples, pears, apricots and peaches; raisins, sweet preserved pineapples in large containers, and other preserved fruits including peaches, apricots, pears, mixed fruits for salad, pineapple and grapefruit.

The establishment of "hardship" quotas for commodities, such as

New Process for Canning Orange Juice

Introduction of a new step in the orange canning process "which produces a juice that can be safely packed in bottles for the beverage trade," was announced by B. C. Skinner, pioneer citrus processor, who declared that he believes "a six-ounce bottle of orange juice will sell to the consumer for 10 cents, in competition with ordinary soda pop at five cents."

Skinner, who is president of Juice Industries, Inc., at Dunedin, said that his company combined the use of an homogenizer with the mallorizing (flash sterilization) process to obtain for the first time orange juice which will not "settle" after it stands for a while.

One of the major problems of canners, and bottlers, has been to produce a stable juice which does not gradually separate into pale water at the top of the container and fragments of juice cells and pulp at the bottom.

In the process developed by his company the past season, Skinner said that the homogenizer has been used in the juice line just ahead of the flash sterilizer. The homogenizer thus is able to break up all particles of pulp into such fine fragments that complete sterilization can be accomplished very rapidly in the mallorizer. This brief use of extremely high temperature, about 265 degrees F, sterilizes the juice without changing the flavor and avoids the objectionable cooked taste which slower pasteurization often gives, he explained.

He added that "people in the citrus industry who believe that the beverage field is the answer to our orange production problem now for the first time can produce a juice which will pack safely in bottles, will retain its natural flavor and will not settle."

The same process can be used on grapefruit and tangerine juice, he said.

raisins, which were imported in relatively small quantities in 1946, is under consideration. Such action would provide for the issuance of greater quantities of these commodities.

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Reports Of Our Field Men . . .

POLK COUNTY

J. M. (Jim) Sample

Growers in this area have generally finished with their oil spraying and are starting back with sulfur for the control of rust mites, which are active at this time. Plentiful rains have encouraged cover crops and a great deal of chopping is being done, with a new crop of grass coming right back. The new fruit crop seems to be sizing up rapidly after a slow start and later bloom, and now juice cells are filling out. Much post-bloom copper spraying was done in this section and melanose, generally, seems to have been controlled with fair to good results. The summer growth while delayed, is appearing until mid-July, seems adequate and on those groves hard hit by the February freeze, the growth is very heavy but with some melanose appearing.

WEST CENTRAL FLORIDA

E. A. (Mac) McCartney

We finished with our summer application about the middle of June which was a very liberal application and our groves are now in excellent condition. We have had an excellent flush of growth on most varieties of fruit and the fruit crop is sizing up in good shape. Scale has been prevalent and most growers have about finished with their oil spray. This will be followed soon with sulphur in an effort to keep rust mite under control. Many growers are taking advantage of the summer months to prune their trees and to do odd jobs that are necessary in keeping their properties in excellent condition. The past growing season was not very profitable to the vegetable growers, but they are optimistic about the coming season and are making the plans to go forward with a normal crop. It appears that we might have an increased vegetable acreage but this will be divided in a diversified manner.

NORTH CENTRAL FLORIDA

V. E. (Val) Bourland

We were late in getting our fruit moved this summer, but finally this operation has been completed and growers are now busy with their oil spray and will be completed very shortly. We have had less trouble with rust mite this summer than in a number of years, but it is still necessary to keep a careful check on these pests if we are going to have good clean fruit this fall. We have had ample rain and cover crops have made a very fine growth, with many growers having already chopped their groves and the new cover crop is coming back fast. Vegetable growers are making plans for the fall crops and in some instances seed beds are being prepared. Citrus groves are in excellent condition and we have a fairly good crop of fruit on most varieties. We have had a prolific new growth during the past few weeks.

SOUTHWEST FLORIDA

Eaves Allison

Vegetable growers in the Palmetto and Ruskin areas are beginning to prepare their seed beds and are getting their land ready for the fall planting season. In the Fort Myers section first cover crops are being cut and in some lands late cover crops have just been seeded. Citrus groves are in excellent shape and continuing rains over this whole section have been most favorable to trees and fruit. The crop looks good both as to quality and quantity. The outlook for next season is optimistic. With no future commitments in the way and no general expectation of high prices for fruit on the tree, the season should get off to a good healthy start. Prices should be firm, whatever the amount may be. Ground water is in good supply with ditches, ponds and prairies at good high level. This condition should insure ample reserve moisture for the coming season.

HILLSBOROUGH & PINELLAS COUNTIES

C. S. (Charlie) Little

We have had a fight on our hands for the past few years with scale insects and this season is no different. We have been spraying with oil and in many instances it will be necessary to spray the second time to completely control these pests. Rust mite have been active but we have had very little fruit damage and growers are determined to keep their fruit clean and have real quality to place on the market this fall. We have had plenty of rain, new growth has been plentiful and the new crop of fruit is sizing up well. Our grapefruit crop is very good and we have an average crop of oranges. Cover crops have been better than we have had in a number of years. There has been very little interest shown by fruit buyers to date. However, it is still a little early and most growers are extremely optimistic about the approaching season.

SOUTH POLK & HIGHLANDS COUNTIES

R. L. (Bob) Padgett

Many groves in this section were damaged much more severely by the freeze than was first expected, and we had wood to die back as late as June. Growers are taking advantage of the extra labor available during the summer months and are getting the dead wood removed from their property. We have had a very nice flush of growth and this is especially true on those properties that were damaged and defoliated by the freeze. Grapefruit has shown less growth than oranges. Our fruit crop is spotted as far as oranges are concerned with some groves carrying a very nice crop while others have an extremely light crop. Cover crops are excellent and in many instances they have been chopped with the second crop making a nice growth. We have heard of several fruit sales and have seen quite a few on-the-tree buyers making some calls throughout the territory. To us this seems like a healthy condition.

ADVERTISEMENT—LYONS FERTILIZER COMPANY



Looks like Florida growers has most all been lookin' ahead for the comin' season, since most of 'em has been doin' a good job of promotin' the development of a real crop of quality fruit. So far as we kin jedge most growers has used the proper fertilizer mixtures and has been followin' through with a complete spray program. We're hopin' that this same good care will be kept up the balance of the season and that we have favorable weather conditions this fall. If we do we'll sure have some top quality fruit that will create a good early market which will continue throughout the season whenever Florida fruit is on sale.

The California Citrograph recently carried an article in which it was stated that Florida probably made more fruit per tree and larger fruit than that raised in California, but that our fruit couldn't approach the quality of California fruit. We shore would like to know by what yard stick this writer was measuring his quality.

Lee County is fast comin' to be the gladiolus center of the world. Durin' the past season 2,000 acres of glads was planted in that county which brought a gross return of better than two million dollars. Air express and fast truck service was used to put these flowers into every state in the Union. Lee County is also gainin' a reputation as a sweet potato producin' area. The 1947 crop of 400 acres was an increase of over 400 per cent more than was planted in 1946.

Dr. Paul Harding of the USDA has obtained data showin' that freezin' of Temple oranges affected both the amount and the quality of the juice. The frozen fruit had less juice and a lower content of total solids, total acid, active acidity (pH, and ascorbic acid, vitamin content). The juice of the frozen oranges he reported was flat, inspid, or characterless in flavor and at all times had a higher solids-acid ratio.

With the packin' houses closed down now there'll be plenty of labor to handle the prunin' and other odd jobs on the grove. At lot of growers is takin' advantage of this situation.

A lot of folks is takin' vacations now and we hope you are enjoyin' yours. I'm having a swell time right here at home, but we'll have to admit that a change of scenery does help some now and then . . . here's hopin' next season's fruit prices will enable you to take an even better vacation next year.

Uncle Bill

THE GRASSHOPPER MENACE IN FLORIDA FOR 1947 (Continued from page 4)

the control of several species of grasshopper. Whereas, benzene hexachloride loses its effectiveness in about three days, these new materials have shown residual toxicities of 10 days to two weeks. They are being tested under Florida conditions at the present time and definite recommendations will be made as soon as practicable.

THE FLORIDA CITRUS INDUSTRY (Continued from page 9)

in Florida citrus. Both methods could, of course, be used at the same time.

From an economic standpoint there are few objections to the regulation of shipments during short periods as a means of avoiding short-time surpluses and shortages. Lacking coordination as they do, the three or four hundred selling organizations handling fresh citrus fruit in Florida frequently put more fruit on a market in a given period than it can absorb at stable prices. These excessive supplies then lead to price cutting in a desperate effort to dispose of all the fruit in too short a period. Fruit dealers naturally hesitate to buy on a rapidly falling market, for the price on a carload of fruit may fall markedly before they can sell it to the retailers. The resulting lack of interest on the part of the dealers tends to cause further price declines. Since some time must elapse before the lower prices can be passed on to consumers, there is no immediate increase in consumption that would help absorb short-time surpluses.

The immediate effects of oversupply in a particular market usually are lower returns to growers, little or no benefits to consumers, reduced movement into trade channels, and reluctant handling by dealers. In other citrus producing areas where more orderly marketing has been promoted by regulating weekly shipments among markets, both growers and consumers have seemed to benefit.

Controls that limit the total supply marketed during the entire season, however, undoubtedly provide the most powerful device. They are effective in situations where a well-regulated flow of shipments during the season has failed, because of a large total supply, to keep prices at levels profitable to the growers. Citrus growing in Florida, like that

in most other areas, has had a widely fluctuating annual production. Unlike manufacturers who can regulate their production in accordance with expected demand, citrus growers can do little to change their production in anticipation of changes in demand. Frequently, therefore, they must dispose of an abnormally large crop in a period when consumer buying power is relatively low. That a relatively large reduction in the price of fresh citrus fruit does not bring a proportionate increase in the quantity sold makes the problem very difficult.

(Continued next issue)

FOURTEENTH ANNUAL SESSION FLORIDA CITRUS INSTITUTE (Continued from page 11)

Growers' Association, will discuss the kind of quality that canners want.

Staff members of the Citrus Experiment Station at Lake Alfred will take up most of the Thursday program. Dr. A. F. Camp will summarize the status of tristeza investigations, W. L. Thompson will speak on insecticides, Dr. J. T. Griffiths on scale-insects, C. E. Stearns, Jr., on oil deposits in scale sprays, Dr. R. F. Sult on foot rot and water damage, Dr. B. R. Fudge on utilization of fertilizer, H. J. Reitz on arsenic sprays, and J. W. Sites on the quality problem. Dr. J. Wayne Reitz will lead a panel discussion on producing quality fruit.

The institute will conclude Friday morning.

K. S. McMullen, district agent with the Extension Service, will be director. Other members of the staff will include Norris, A. H. Whitmore of the Florida Citrus Production Credit Association, Hartley Hethcox, Mrs. Gladys Kendall, Volusia home demonstration agent, Joe E. Brown and Bob Gest.

Cooperating agencies include the Experiment Station, State Department of Agriculture, Citrus Commission, State Marketing Bureau, Florida Farm Bureau and Florida Citrus Production Credit Association.

DEBUSK AND NETTLES CLOSE LONG CAREERS WITH FARM SERVICE (Continued from Page 13)

Florida, helping to set up early demonstrations in the use of dolomite to correct magnesium deficiency. Numerous improvements in grove management have been

brought about through his aid. He has been a leader in citrus grove irrigation development and irrigation facilities are now installed on about one-third of the state's citrus acreage.

He assisted in establishing many citrus cooperative associations and has served as director of several of them, including the Florida Citrus Exchange.

HOW DISEASES ATTACK SHADE AND OTHER TREES (Continued from Page 14)

make a smooth cut close to the trunk or large branch. All pruning wounds and other wounds that occur accidentally should be treated promptly with a good tree-wound dressing or paint. When trees are taken from shaded areas and planted in exposed locations, the trunks should be wrapped with spanish moss or other suitable material to prevent sun-scald. Attention to these unexpensive operations at the proper time will usually prolong the life of valuable shade trees.

Classified Ads

WANTED — The address of J. S. Smith, a grower of Persian limes on the Florida East Coast. Address information to S. L. F., Box 120, Bartow, Florida.

PEACH TREES. IMPROVED JEWEL Variety. Accepting reservations for January-February delivery. Place reservations early to insure delivery.

Clay Hill Nurseries Co.
Box 2880, Tampa, Fla.

CITRUS TREES for fall and spring delivery. All varieties. F. Gould Garcia, Box 843, Lakeland, Florida.

AVOCADO-MANGO TREES 1947 PLANTING FOR SALE IN QUANTITY. BROOKS-TOWER NURSERIES Box 36, HOME-STEAD, FLORIDA.

SUPERIOR CITRUS TREES. No freeze damage. Principal varieties available for June planting. Order now. Ward's Nursery, Avon Park, Florida.

CITRUS TREES. USUAL VARIETIES and Rootstocks. Accepting reservations for Fall 1947 and Spring 1948 delivery.

Clay Hill Nurseries Co.
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WILL GROW CITRUS TREES ON contract, sour, lemon, or cleo rootstock. John Grieshop Nursery, 1½ miles north of San Antonio. Mail—Dade City, Fla.

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